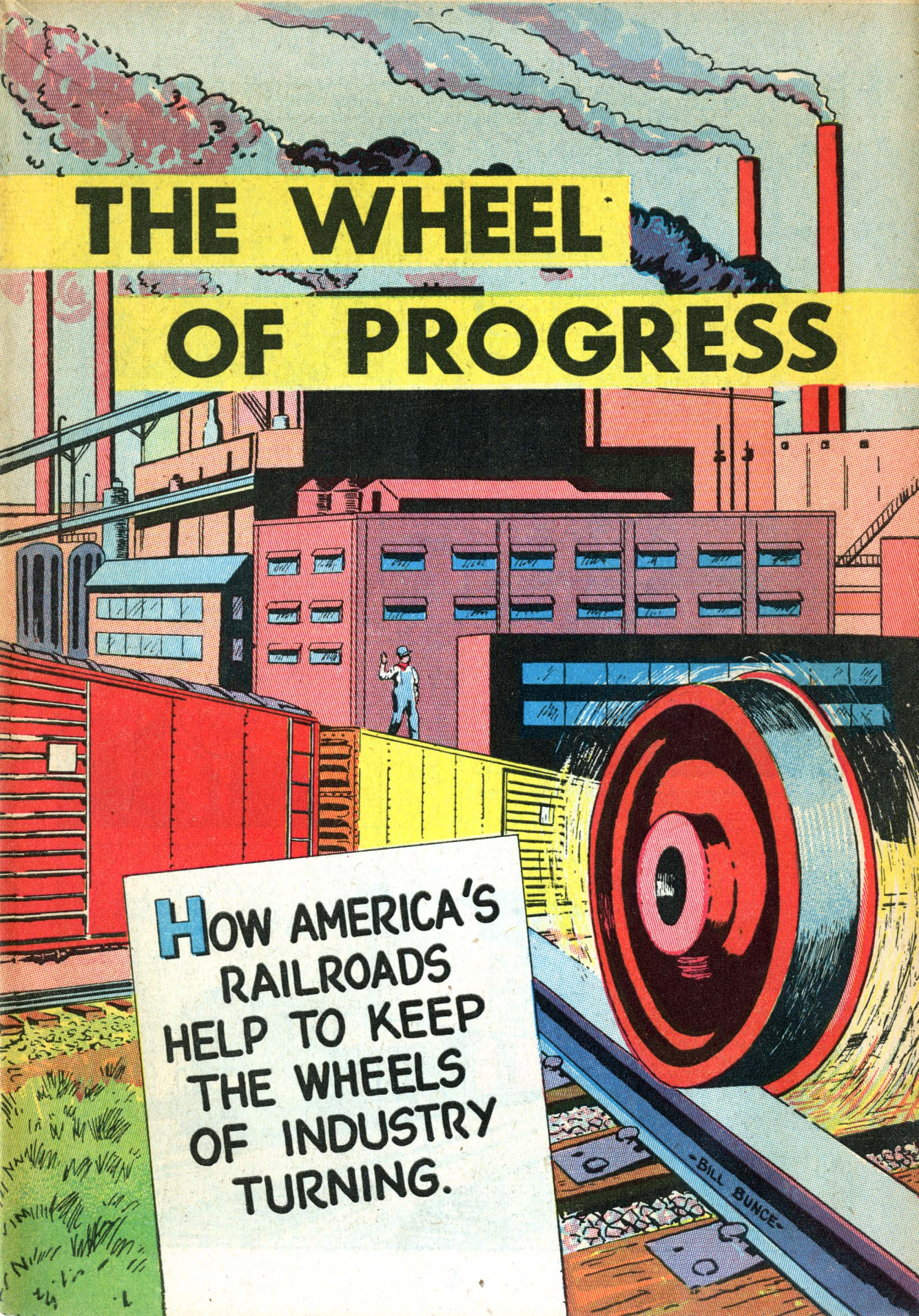

THE WHEEL
OF PROGRESS
HOW AMERICA'S RAILROADS HELP TO KEEP THE WHEELS OF INDUSTRY TURNING.
-BILL BUNCE-

IN A JUNIOR HIGH SCHOOL CLASS WHERE INDUSTRIAL DEVELOPMENT IS BEING STUDIED, REPRESENTATIVES OF VARIOUS INDUSTRIES HAVE BEEN INVITED TO TALK TO THE STUDENTS. TODAY...

THIS IS MR. DIXON, A RAILROAD FREIGHT TRAFFIC REPRESENTATIVE. MR. DIXON IS GOING TO TELL US ABOUT RAILROADS AND THEIR IMPORTANCE TO INDUSTRY.

Agriculture
Automotive
Chemicals
Coal
Construction
Forest Products

THE VARIOUS INDUSTRIES YOU HAVE BEEN STUDYING IN THIS CLASS PROCESS OR MANUFACTURE **THINGS.** THE RAILROADS PRODUCE **SERVICE** – TRANSPORTATION SERVICE TO MEET THE NEEDS OF ALL OTHER INDUSTRIES.

RAILROADS ARE A BIG INDUSTRY IN THEMSELVES, EMPLOYING ABOUT A MILLION WORKERS. THEY HAVE SHOPS, TERMINALS, YARDS, STATIONS, MORE THAN 350,000 MILES OF TRACKS, SOME 33,000 LOCOMOTIVES AND MORE THAN TWO MILLION FREIGHT CARS. RAILROADS KEEP THE WHEELS OF INDUSTRY TURNING. HERE'S HOW THEY DO IT.

"RIGHT NOW AT OUR BIG CLASSIFICATION YARD LONG FREIGHT TRAINS ARE COMING AND GOING, THOUSANDS OF CARS ARE BEING SORTED AND DISTRIBUTED – CARS FROM ALL OVER THE COUNTRY, CARRYING ALL KINDS OF FREIGHT. LET'S TAKE A LOOK AT SOME OF THESE CARS AND THE FREIGHT THEY ARE CARRYING."

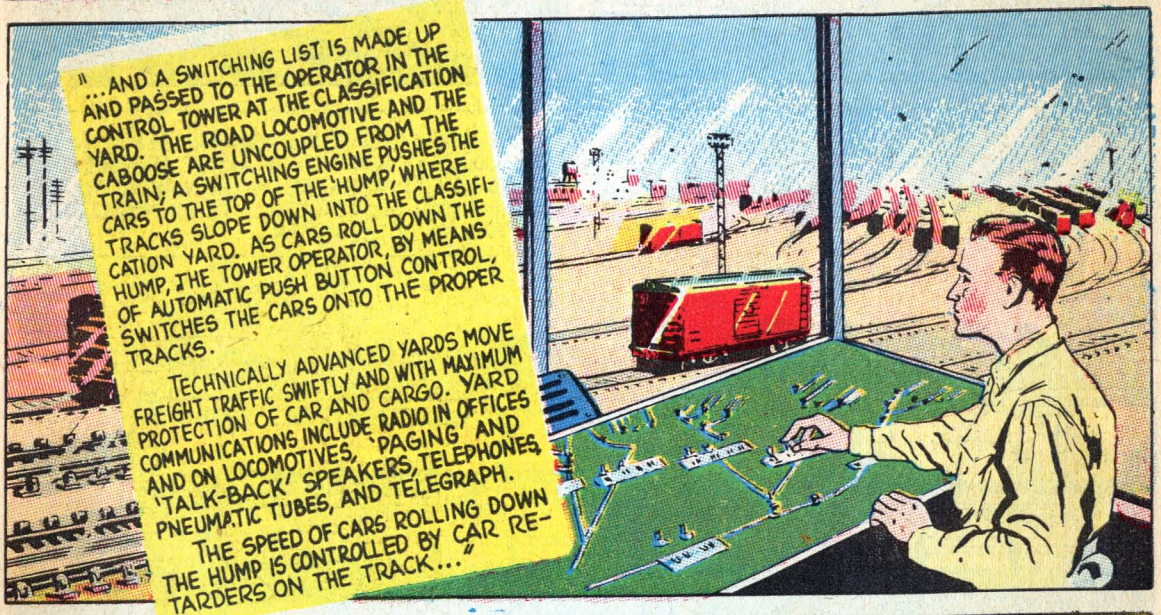
"A TRAIN OF MIXED FREIGHT WITH MANY REFRIGERATOR CARS HAS ENTERED THE RECEIVING YARD, PASSING A TV CAMERA WHICH SCANS THEM..."

"... AND FLASHES THEIR IDENTIFICATION ON THE SCREEN IN AN OFFICE TWO MILES AWAY. THERE, A CAR CLERK TAPE RECORDS THE INFORMATION..."

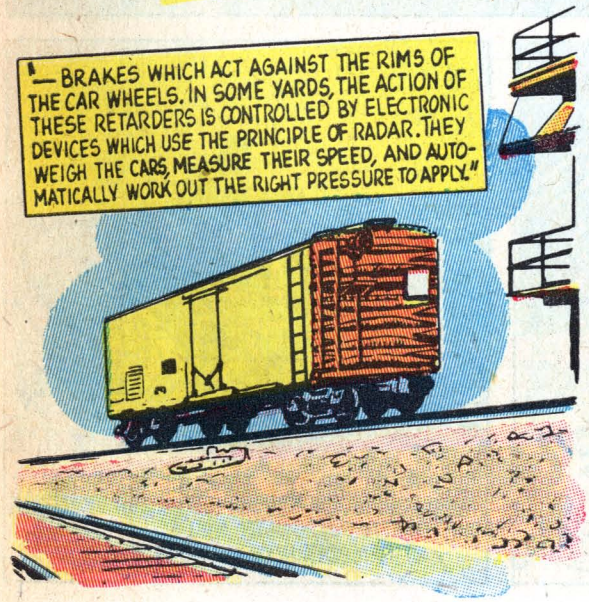
"... AND A SWITCHING LIST IS MADE UP AND PASSED TO THE OPERATOR IN THE CONTROL TOWER AT THE CLASSIFICATION YARD. THE ROAD LOCOMOTIVE AND THE CABOOSE ARE UNCOUPLED FROM THE TRAIN; A SWITCHING ENGINE PUSHES THE CARS TO THE TOP OF THE 'HUMP,' WHERE TRACKS SLOPE DOWN INTO THE CLASSIFICATION YARD. AS CARS ROLL DOWN THE HUMP, THE TOWER OPERATOR, BY MEANS OF AUTOMATIC PUSH BUTTON CONTROL, SWITCHES THE CARS ONTO THE PROPER TRACKS.

TECHNICALLY ADVANCED YARDS MOVE FREIGHT TRAFFIC SWIFTLY AND WITH MAXIMUM PROTECTION OF CAR AND CARGO. YARD COMMUNICATIONS INCLUDE RADIO IN OFFICES AND ON LOCOMOTIVES, 'PAGING' AND 'TALK-BACK' SPEAKERS, TELEPHONES, PNEUMATIC TUBES, AND TELEGRAPH.

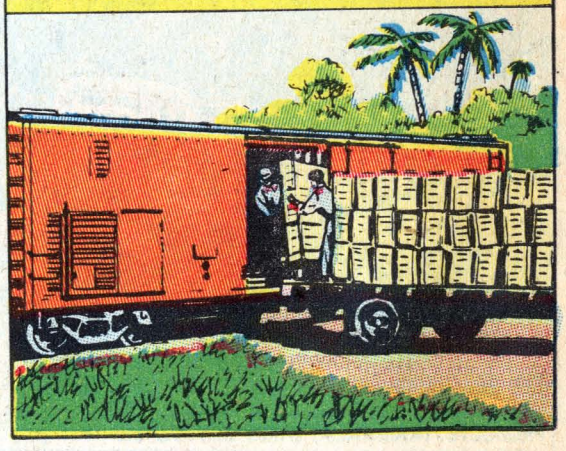
THE SPEED OF CARS ROLLING DOWN THE HUMP IS CONTROLLED BY CAR RETARDERS ON THE TRACK..."



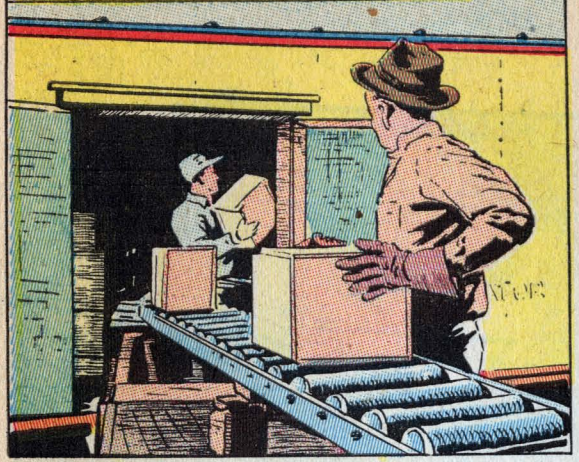
"— BRAKES WHICH ACT AGAINST THE RIMS OF THE CAR WHEELS. IN SOME YARDS, THE ACTION OF THESE RETARDERS IS CONTROLLED BY ELECTRONIC DEVICES WHICH USE THE PRINCIPLE OF RADAR. THEY WEIGH THE CARS, MEASURE THEIR SPEED, AND AUTOMATICALLY WORK OUT THE RIGHT PRESSURE TO APPLY."



"THE FIRST CARS WE'LL LOOK AT ARE REFRIGERATOR CARS, OR 'REEFERS,' AS THEY ARE CALLED. MANY OF THEM CARRY AGRICULTURAL PRODUCTS WHICH MUST BE KEPT UNDER REFRIGERATION OR AT A CERTAIN TEMPERATURE. AN INCREASING NUMBER OF CARS ARE MECHANICALLY REFRIGERATED."



"'REEFERS' BRING US PROCESSED FOODS AND DAIRY PRODUCTS. THEY BRING US FRUITS AND VEGETABLES OF ALL KINDS..."



"... FROM PRODUCING AREAS ALL OVER THE COUNTRY. FARM PRODUCTS THAT DO NOT NEED REFRIGERATION, SUCH AS SUGAR BEETS, ARE CARRIED IN OTHER TYPES OF FREIGHT CARS."

"TRANSPORTED BY FAST RAILROAD FREIGHT SERVICE, THE PRODUCTS OF AGRICULTURE ARRIVE AT PROCESSING PLANTS OR CITY MARKETS, ON THE WAY TO YOUR NEIGHBORHOOD FOOD STORES. TRAINS ROLL DAY AND NIGHT, SUMMER..."

"... AND WINTER, CARRYING FRESH FOOD TO THE PEOPLE OF AMERICA — A YEARLY AVERAGE OF FOUR MILLION CARLOADS OF AGRICULTURAL PRODUCTS. TRAINS ALSO CARRY HAY AND GRAIN..."

"... AND BRING TO THE FARMING AREAS FEED FOR STOCK, SEEDS, FERTILIZER, TRACTORS, AND OTHER MACHINERY AND EQUIPMENT USED IN MODERN AGRICULTURE."

WE HEAR A LOT ABOUT ASSEMBLY LINES, ESPECIALLY IN THE AUTOMOBILE INDUSTRY. RAILROADS SERVE THE AUTO MANUFACTURERS WITH AN "ASSEMBLY LINE" MORE THAN 220,000 MILES LONG!

"YOUR AUTOMOBILE BEGINS AS IRON ORE. RAILROADS TRANSPORT THE ORE FROM MINES TO BLAST FURNACES AND PIG IRON TO STEEL MILLS. THEY ALSO CARRY THE COAL AND LIMESTONE NEEDED IN STEEL MAKING..."

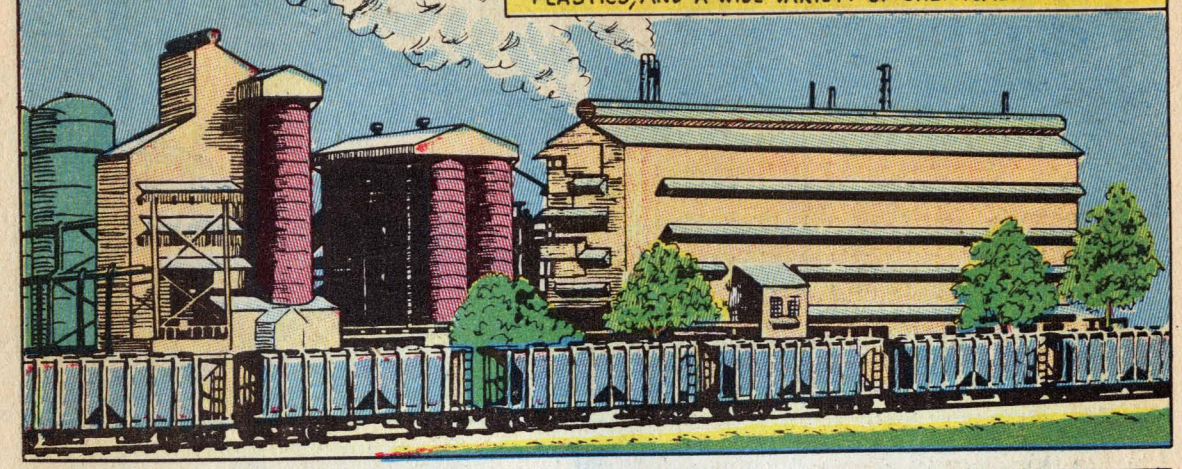
"... AND THEY CARRY THE REST OF THE MATERIALS REQUIRED FOR MAKING THE THOUSANDS OF AUTOMOBILE PARTS."

"AFTER TRANSPORTING THE RAW MATERIALS, RAILROADS CARRY SHEETS OF FINISHED STEEL FROM THE ROLLING MILLS AND THE FINISHED AUTOMOBILE PARTS—FRAMES, ENGINES, TIRES, FABRICS, GLASS—FROM FACTORIES ALL OVER AMERICA TO THE AUTO ASSEMBLY PLANTS. SOME 18,000 REFINED AND TRANSPORTED THINGS GO INTO THE MAKING OF AN AUTO.

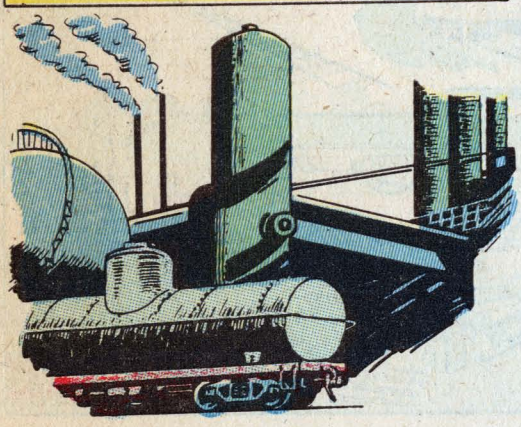
AND WHEN THE FINISHED AUTOS ROLL OFF THE 'ASSEMBLY LINE' AT THE PLANT, THE RAILROAD ASSEMBLY LINE TRANSPORTS MANY OF THEM..."

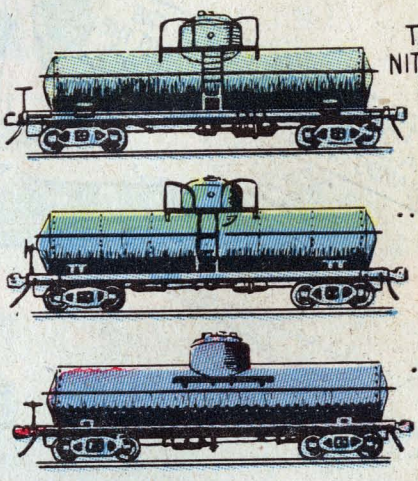
"... IN FREIGHT CARS EQUIPPED WITH MECHANICAL DEVICES TO CARRY THEM SAFELY. MANY OF THE BIG DOUBLE-DOOR BOXCARS YOU SEE IN FREIGHT TRAINS ARE AUTOMOBILE CARS."

"THE RAILROAD INDUSTRY IS A MAJOR TRANSPORTER OF CHEMICALS AND CHEMICAL PRODUCTS, AS WELL AS RAW MATERIALS WHICH ENTER INTO THEIR MANUFACTURE. AMONG MANY PRODUCTS ARE PHOSPHATE ROCK, FERTILIZERS, SULPHUR, ROSIN, TURPENTINE, INSECTICIDES, TAR, PITCH AND CREOSOTE, SOAP, SODIUM PRODUCTS, PLASTICS, AND A WIDE VARIETY OF CHEMICALS."



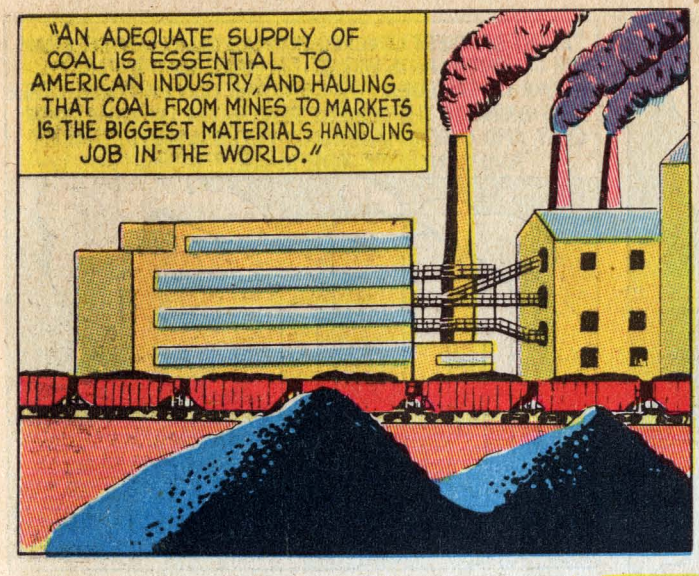
"FOR THE HANDLING OF THESE PRODUCTS RAILROADS USE MANY KINDS OF SPECIALLY-BUILT FREIGHT CARS."





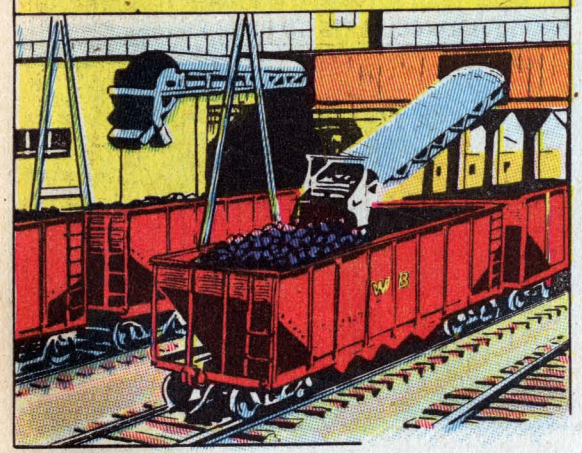
"IN ADDITION TO RAILWAY-OWNED FREIGHT CARS, SOME 39,000 PRIVATELY-OWNED FREIGHT CARS ARE USED IN THE TRANSPORTATION OF CHEMICALS AND CHEMICAL PRODUCTS. WHILE SERVING THE CHEMICAL INDUSTRY BY MOVING RAW MATERIALS AND CHEMICAL PRODUCTS TO AND FROM PLANTS, RAILROADS ALSO SPEND SEVERAL MILLIONS OF DOLLARS ANNUALLY FOR CHEMICALS USED IN CONNECTION WITH THEIR OWN OPERATIONS. THERE IS SCARCELY ANY TYPE OF CHEMICAL PRODUCED IN THE UNITED STATES TODAY WHICH IS NOT USED TO SOME EXTENT BY THE RAILROAD INDUSTRY. THUS, THE RAILROAD INDUSTRY AND THE CHEMICAL INDUSTRY WORK FOR AND WITH EACH OTHER."

"AN ADEQUATE SUPPLY OF COAL IS ESSENTIAL TO AMERICAN INDUSTRY, AND HAULING THAT COAL FROM MINES TO MARKETS IS THE BIGGEST MATERIALS HANDLING JOB IN THE WORLD."

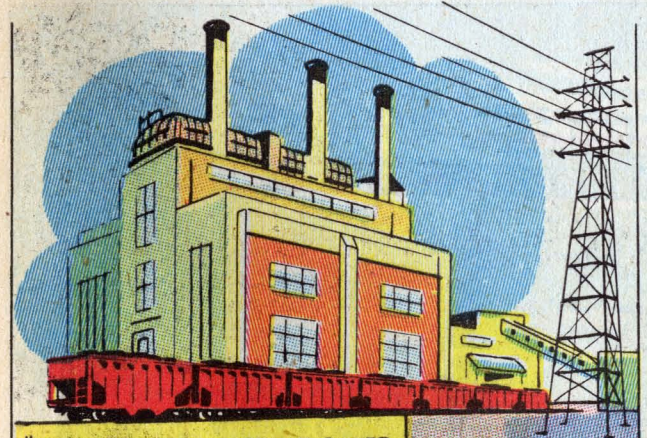


MOST OF THE COAL PRODUCED IN THIS COUNTRY IS HAULED BY THE RAILROADS. THEY HAUL MORE TONS – AND MORE CARLOADS – OF COAL THAN ANY OTHER SINGLE COMMODITY.

"AT THE MINE TIPPLES, COAL IS LOADED THROUGH CHUTES DIRECTLY INTO OPEN-TOP HOPPER CARS..."



"...AND HAULED TO STEEL MILLS, COKING OVENS, AND VARIOUS MANUFACTURING PLANTS."

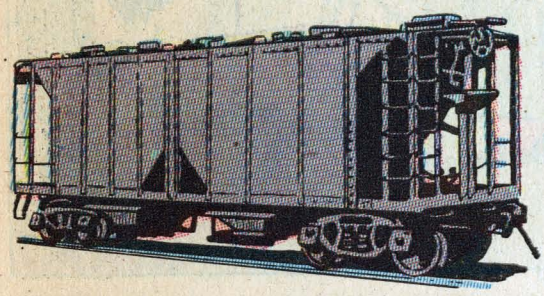


"COAL ARRIVES AT GREAT POWER PLANTS BY RAILROAD AND ITS ENERGY GOES OUT ON HIGH LINES TO TURN THE WHEELS OF OTHER INDUSTRIES. COAL FOR EXPORT IS CARRIED BY RAILROAD..."

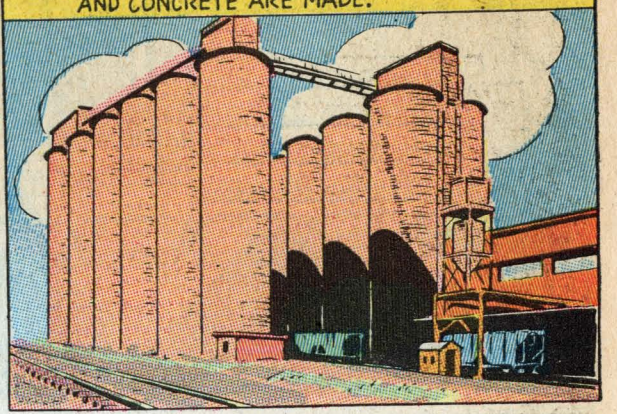
"...TO THE SEAPORTS, WHERE RAILROADS HAVE HUGE DOCKSIDE FACILITIES SUCH AS COAL DUMPERS. ONLY RAILROADS ARE EQUIPPED TO SERVE THE COAL INDUSTRY ON SUCH A NATION-WIDE BASIS."

MANY FREIGHT CARS WE SEE GOING THROUGH THE YARDS ARE COVERED HOPPER CARS— ESPECIALLY MADE TO TRANSPORT VARIOUS COMMODITIES IN BULK SHIPMENTS.

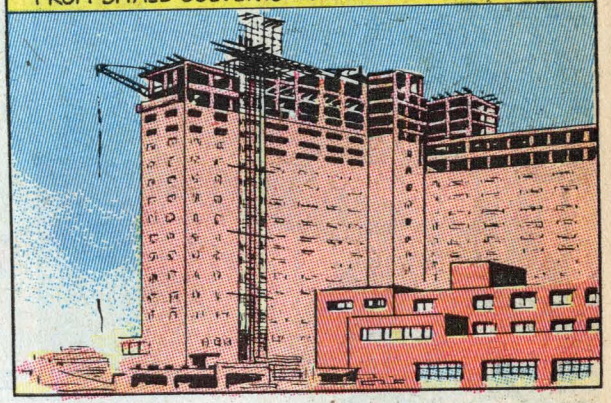
"COVERED HOPPER CARS ARE USED FOR SHIPPING CEMENT IN BULK."

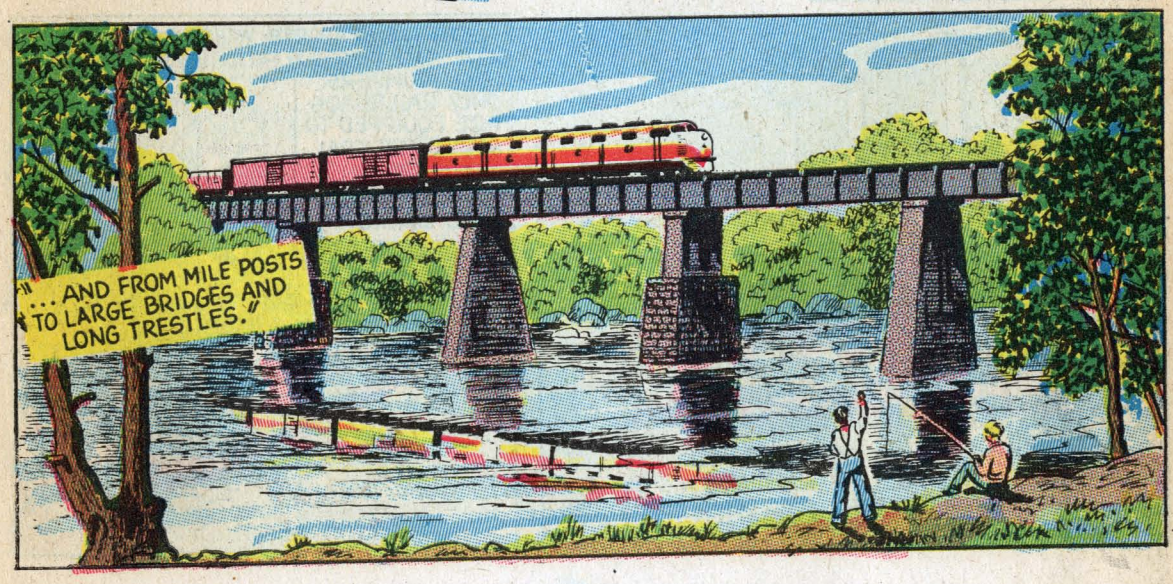


"MANY OF THESE COVERED HOPPERS CARRY CEMENT FROM THE CEMENT PLANTS WHERE IT IS MADE TO THE PLACES WHERE IT IS NEEDED FOR CONSTRUCTION PURPOSES. OTHER CARS BRING TO THE CEMENT PLANTS THE LIMESTONE, GYPSUM, CLAY, AND OTHER MATERIALS FROM WHICH CEMENT AND CONCRETE ARE MADE."



"IN ADDITION TO HAULING CEMENT AND CONCRETE, RAILROADS TRANSPORT BRICK, STONE, IRON AND STEEL, LUMBER, TILE, GLASS, PAINT, AND OTHER BUILDING MATERIALS. RAILROADS ALSO BUY AND USE CONSTRUCTION MATERIALS. RAILROADS HAVE MORE THAN 160 USES FOR CONCRETE, RANGING FROM SMALL CULVERTS TO HUGE PIERS..."





"THIS COUNTRY'S 488,000,000 ACRES OF COMMERCIAL FOREST LAND PROVIDE MORE THAN NINE-TENTHS OF THE LUMBER NEEDED BY THE AMERICAN PEOPLE EACH YEAR FOR HOMES AND INDUSTRIAL BUILDINGS, BARNS AND FENCES, FURNITURE AND CHURCHES, SHIPS AND MATCHES, AND HUNDREDS OF OTHER THINGS. FOREST INDUSTRIES RELY HEAVILY UPON RAILROADS FOR THEIR TRANSPORTATION NEEDS."

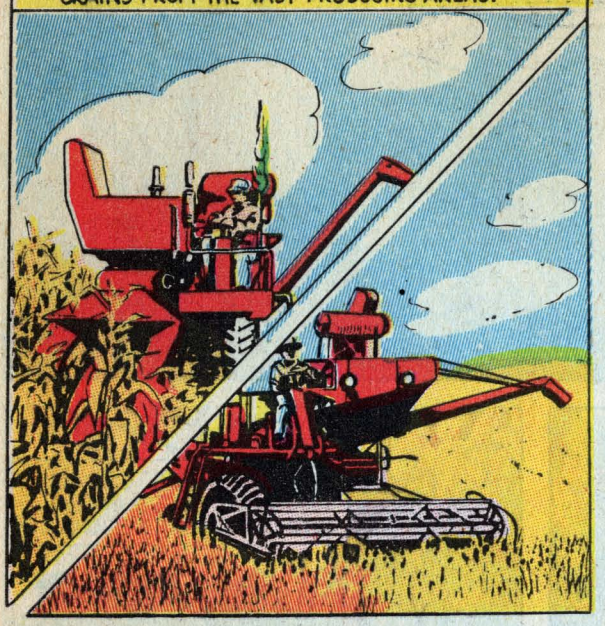
"THIS TRANSPORTATION BEGINS WITH HAULING LOGS FROM FORESTS. WESTERN PINE, FOR INSTANCE, IN THE NORTHWEST..."

"... CYPRESS, CEDAR, AND HARDWOODS IN THE SOUTHERN FOREST REGIONS..."

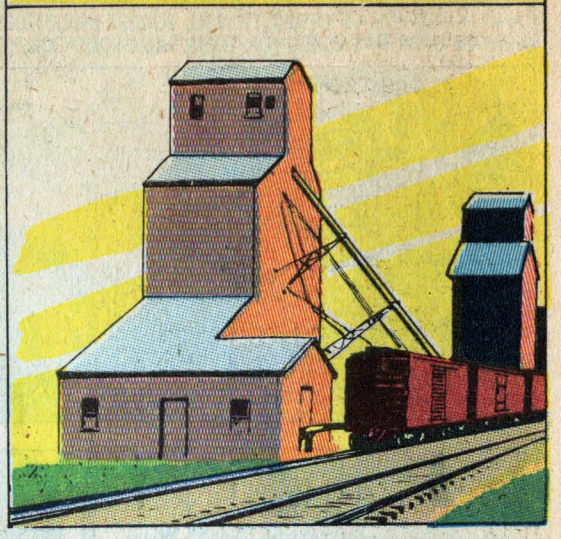
"... ARE HAULED TO MILLS ON ESPECIALLY EQUIPPED FLAT CARS. THEN THE RAILROADS CARRY THE WOOD PRODUCTS TO MARKETS. IN A RECENT YEAR, MORE THAN 2,300,000 CARLOADS OF FOREST PRODUCTS MOVED BY RAIL. RAILROADS THEMSELVES ARE LARGE USERS OF FOREST PRODUCTS."

"EVERY 14 SECONDS, ON THE AVERAGE, HOUR AFTER HOUR, DAY AND NIGHT, THE YEAR 'ROUND, A CARLOAD OF FOREST PRODUCTS STARTS ITS JOURNEY SOMEWHERE IN THE U.S."

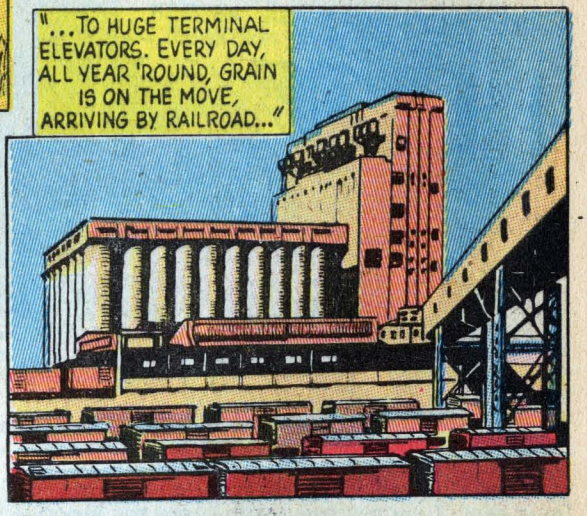
"WE HAVE SEEN HOW RAILROADS SERVE AGRICULTURE IN GENERAL. NOW, LET'S SEE HOW THEY SERVE ONE PHASE OF IT IN PARTICULAR. AGAIN, THIS IS A STORY OF FARMERS, FOOD, AND FREIGHT CARS. IT IS THE STORY OF THE DISTRIBUTION OF GRAIN AND GRAIN PRODUCTS; THE TRANSPORTATION OF HUGE CROPS OF SOY BEANS, CORN, WHEAT, AND OTHER GRAINS FROM THE VAST PRODUCING AREAS."

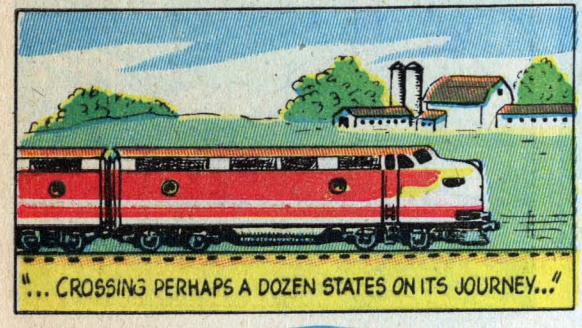


"WHEN THE GRAIN IS HARVESTED, MOST OF IT MOVES BY FREIGHT CAR—AVERAGING 50 TONS TO THE CAR—FROM COUNTRY STORAGE ELEVATORS ALONG THE RAILROAD LINES, OFTEN IN SOLID TRAINLOADS..."

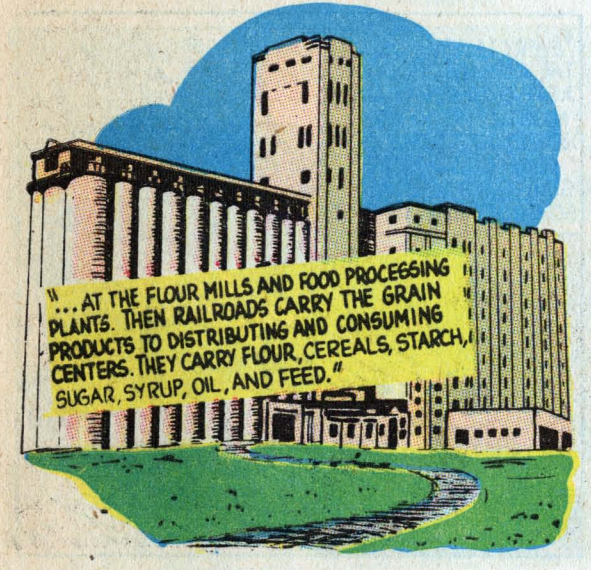


"...TO HUGE TERMINAL ELEVATORS. EVERY DAY, ALL YEAR 'ROUND, GRAIN IS ON THE MOVE, ARRIVING BY RAILROAD..."





"...CROSSING PERHAPS A DOZEN STATES ON ITS JOURNEY..."



"...AT THE FLOUR MILLS AND FOOD PROCESSING PLANTS. THEN RAILROADS CARRY THE GRAIN PRODUCTS TO DISTRIBUTING AND CONSUMING CENTERS. THEY CARRY FLOUR, CEREALS, STARCH, SUGAR, SYRUP, OIL, AND FEED."

"AT RAILROAD PIERS HUGE QUANTITIES OF GRAIN ARE LOADED FROM FREIGHT CARS INTO SHIPS FOR EXPORT TO FOREIGN COUNTRIES."

"THE STEEL INDUSTRY DEPENDS GREATLY ON RAILROADS. RAILROADS TRANSPORT THE BASIC MATERIALS USED IN STEEL-MAKING—THE IRON ORE AS IT IS DUG FROM THE EARTH..."

"... COAL FROM THE COAL MINES TO SUPPLY THE STEEL INDUSTRY'S HEAT AND ENERGY..."

"... AND LIMESTONE FROM THE LIMESTONE QUARRIES..."

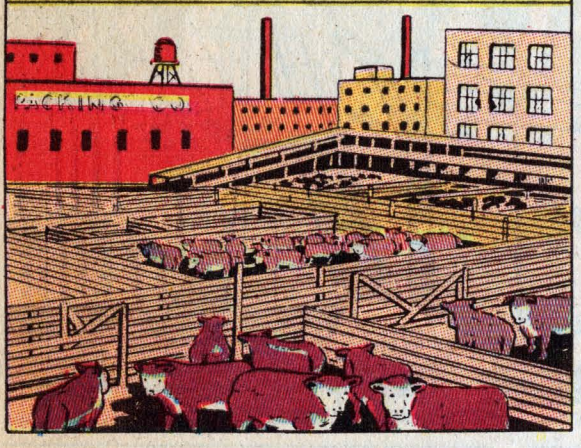
"...TO BLAST FURNACES WHICH MAKE PIG IRON, ONE OF THE TWO PRINCIPAL SOURCES OF METAL USED IN THE MAKING OF STEEL. MOLTEN IRON FROM BLAST FURNACES IS THEN CARRIED TO THE STEEL-MAKING FURNACES."

"SCRAP IS THE OTHER PRINCIPAL SOURCE OF METAL FOR STEELMAKING. MOST OF IT IS HAULED TO THE STEEL MILLS BY RAIL."

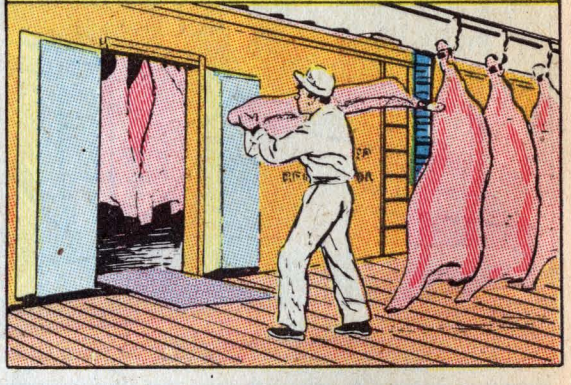
"IN ADDITION TO HAULING MOST OF THE STEEL INDUSTRY'S BASIC MATERIALS, RAILROADS TRANSPORT VAST QUANTITIES OF IRON AND STEEL PRODUCTS, INCLUDING HUGE SHIPMENTS WHICH ARE CARRIED ON SPECIALLY-BUILT FLAT CARS. STEEL IS USED BY RAILROADS—FOUR TO FIVE MILLION TONS A YEAR—FOR TRACKS, BRIDGES, BUILDINGS, LOCOMOTIVES, CARS, AND OTHER EQUIPMENT."

"RAILROADS LINK LIVESTOCK GROWING AREAS WITH MEAT-PACKING PLANTS AND DISTRIBUTION CENTERS. LIVESTOCK RECEIVES THE BEST OF CARE AND SERVICE WHEN MOVING BY RAIL. IF THE JOURNEY TO MARKET REQUIRES MORE THAN 28 HOURS, THE ANIMALS ARE UNLOADED AT RESTING PENS. THEY ARE FED AND WATERED AND KEPT IN THE PENS FOR AT LEAST FIVE HOURS BEFORE BEING RELOADED. STOCK TRAINS TRAVEL ON FAST SCHEDULES, BRINGING CATTLE, SHEEP, AND HOGS..."

"...TO THE STOCKYARDS. HERE THEY ARE SLAUGHTERED AND PROCESSED UNDER THE SUPERVISION OF FEDERAL, STATE, OR LOCAL INSPECTORS..."



"...AND THE PROPERLY GRADED MEAT PLACED IN REFRIGERATOR CARS TO BE SHIPPED TO DISTRIBUTORS AND RETAILERS ALL OVER THE COUNTRY. REFRIGERATOR CARS USED FOR CARRYING FRESH MEATS ARE SIMILAR TO THOSE USED TO CARRY FRUITS AND VEGETABLES, EXCEPT THAT THEY ARE EQUIPPED WITH STEEL BARS AND HOOKS UPON WHICH TO HANG THE MEAT. THERE ARE ALSO BRINE TANK REFRIGERATOR CARS."



"REEFER TRAINS, ANNUALLY TRANSPORTING HUNDREDS OF THOUSANDS OF CARLOADS, ASSURE US OF AN ABUNDANT VARIETY OF FRESH MEATS AND MEAT PRODUCTS AT ALL TIMES. RAILROADS BRING US CURED MEATS, POULTRY, EGGS, BUTTER, CHEESE, AND OTHER FOODS CLASSED AS ANIMAL PRODUCTS. MEAT ANIMALS ALSO YIELD IMPORTANT BY-PRODUCTS SUCH AS HIDES, LEATHER, SOAP, GLUE, OILS, AND CHEMICALS, WHICH ARE CARRIED IN LARGE QUANTITIES BY RAILROADS."

PAPER IS AMERICA'S FIFTH LARGEST INDUSTRY AT THE PRESENT TIME. MORE THAN 90 PER CENT OF THE PAPER MANUFACTURED IN THE U.S. IS MADE FROM WOOD PULP. HERE IS WHAT RAILROADS DO FOR THIS FAST-GROWING INDUSTRY.

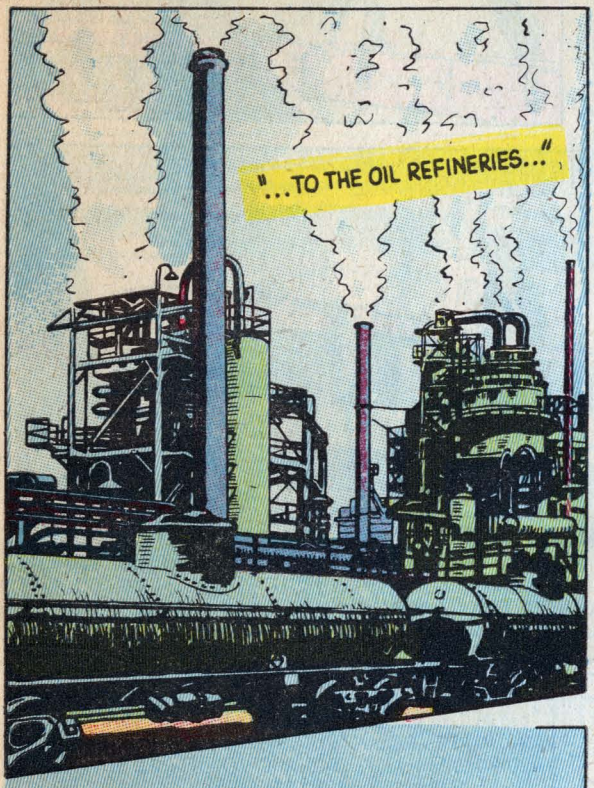
"THE PROCESS OF CONVERTING TREES INTO PAPER BEGINS IN THE FOREST WITH THE LOGGING OPERATION. THE LOGS, USUALLY CUT IN FOUR-FOOT LENGTHS, ARE OFTEN CARRIED ON WOOD RACK CARS."

"IN MANY PARTS OF THE COUNTRY WHERE PULPWOOD IS PRODUCED, TRAINLOADS OF PULPWOOD ARE SEEN DAILY ON THEIR WAY TO THE MILLS. WOOD RACK CARS HOLD AN AVERAGE OF 17 CORDS (128 CUBIC FEET EACH) OF PULPWOOD."

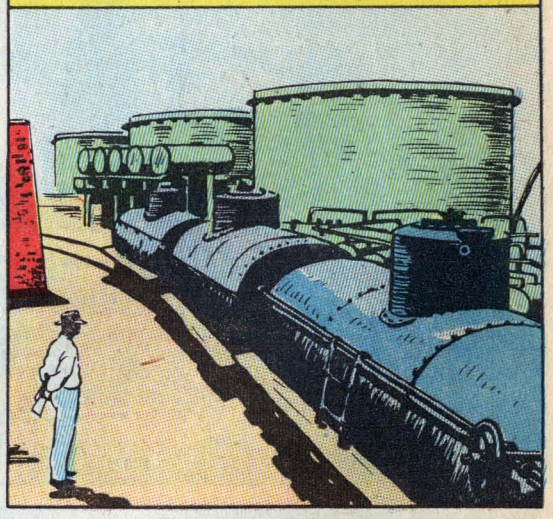
"ANOTHER SPECIAL TYPE OF PULPWOOD CAR HAS HINGED SIDES AND CAN BE QUICKLY UNLOADED BY A SPECIAL CAR-TILTER AT STORAGE PONDS."

"FROM THE PAPER MILLS, TRAINS TRANSPORT PAPER AND PAPER PRODUCTS, MOSTLY IN BOXCARS, TO PRINTING AND PUBLISHING PLANTS AND OTHER PLACES WHERE THEY ARE USED OR SOLD."

"MANY THOUSANDS OF TANK CARS FOR THE TRANSPORTATION OF PETROLEUM PRODUCTS ARE ROLLING ON THE RAILROADS OF AMERICA. RAILROADS SERVE THE PETROLEUM INDUSTRY BY CARRYING THE MATERIALS USED IN REFINING OIL PRODUCTS..."

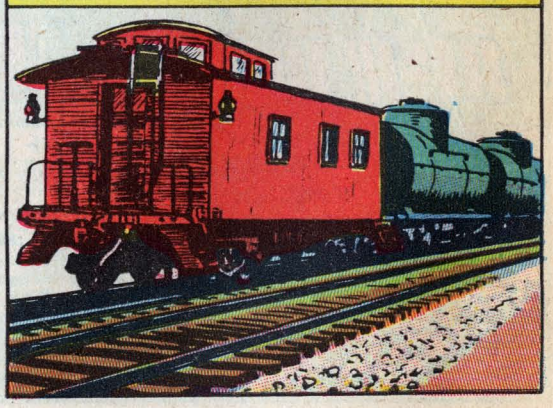


"...AND FROM THE REFINERIES AND TERMINALS OF PIPE LINES RAILROADS HAUL OIL AND GASOLINE TO DISTRIBUTION CENTERS, TO MILITARY AND NAVAL INSTALLATIONS, STEEL PLANTS, AUTOMOBILE FACTORIES, AIRPLANE PLANTS, AND OTHER MANUFACTURING INDUSTRIES. MANY SPECIAL TYPES OF TANK CARS ARE USED IN THE SERVICE OF THE PETROLEUM INDUSTRY..."

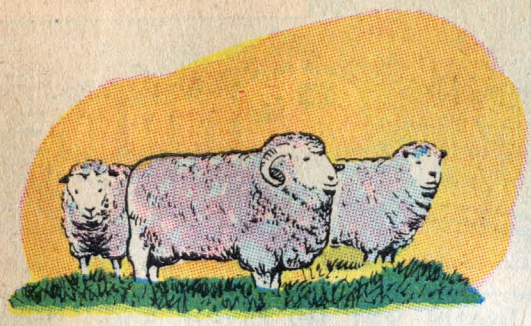


"...INCLUDING PRESSURE TANK CARS FOR THE TRANSPORTATION OF LIQUEFIED GAS. WHEREVER THE STEEL RAILS GO YOU WILL SEE TANK CARS ROLLING, DELIVERING PETROLEUM PRODUCTS WHERE THEY ARE NEEDED."

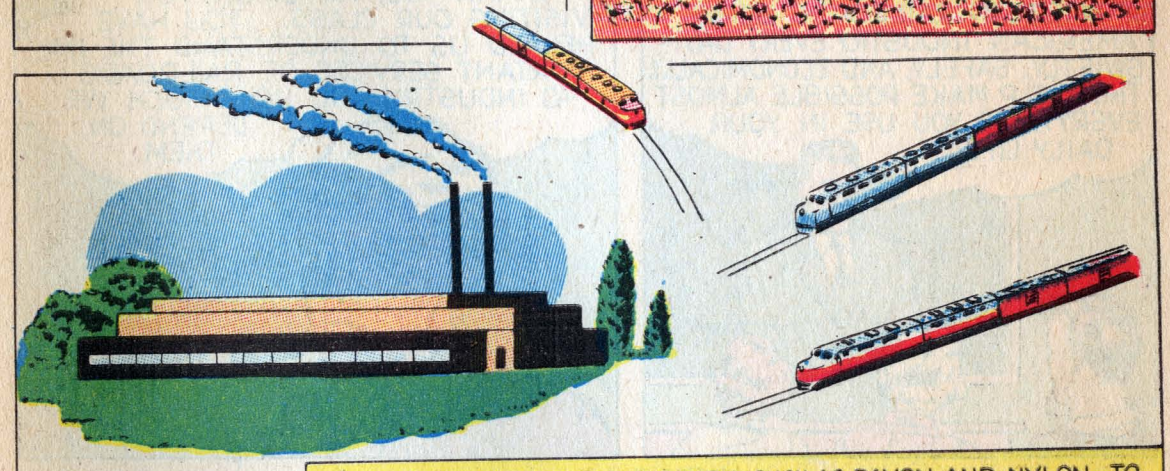
"THIS WIDESPREAD PETROLEUM TRANSPORTATION SYSTEM OF THE RAILROADS HELPS MAKE POSSIBLE AN ADEQUATE DISTRIBUTION OF OIL THROUGHOUT THE COUNTRY AND TO THE SEAPORTS FOR SHIPMENT ABROAD."



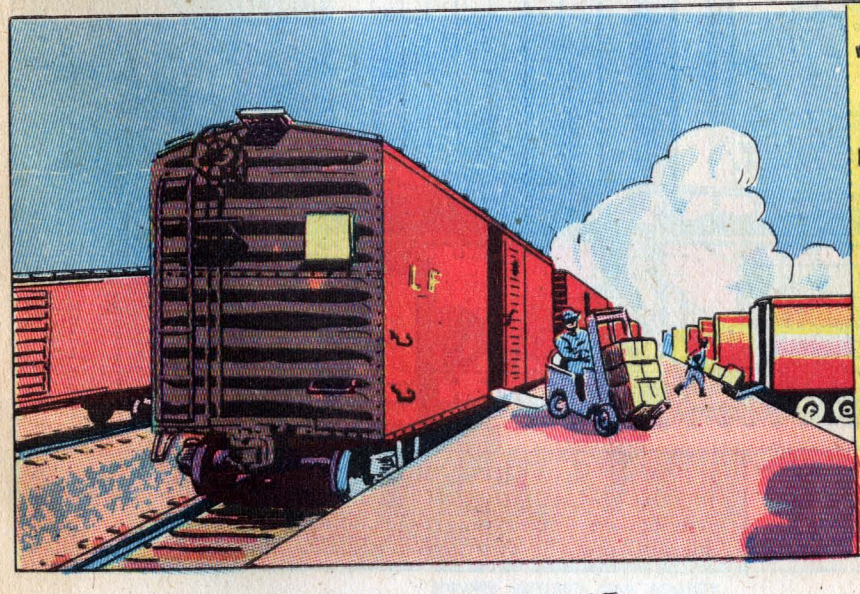
"NOW LET'S SEE WHAT PART THE RAILROADS PLAY IN THE TEXTILE INDUSTRY. FIRST THEY TRANSPORT THE RAW MATERIALS — WOOL FROM THE AREAS WHERE SHEEP ARE RAISED..."



"...COTTON FROM THE COTTON-GROWING REGIONS (AN AVERAGE OF 18 MILLION 500-POUND BALES A YEAR)..."



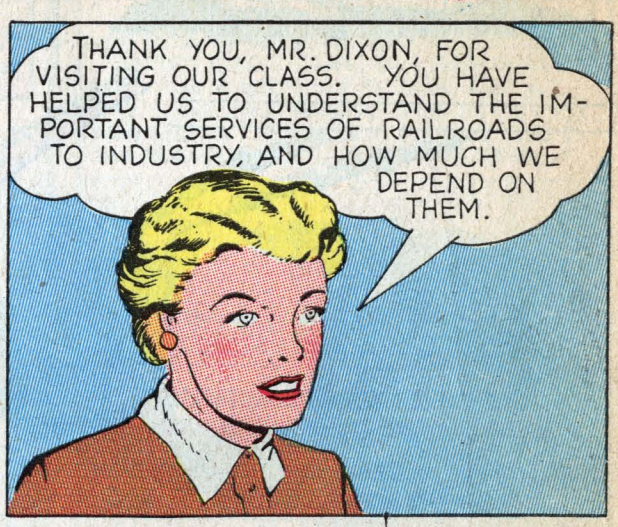
"...ALSO SYNTHETIC FIBRE AND YARN, SUCH AS RAYON AND NYLON—TO THE MILLS WHERE CLOTH IS MADE. THOUSANDS OF TONS OF RAW MATERIALS FOR TEXTILES ARE CARRIED BY RAIL EVERY YEAR. RAILROADS ALSO BRING TO THE FACTORIES OIL, FUEL, HEAVY MACHINERY, AND THE CHEMICALS USED IN THE MANUFACTURE OF CLOTH."

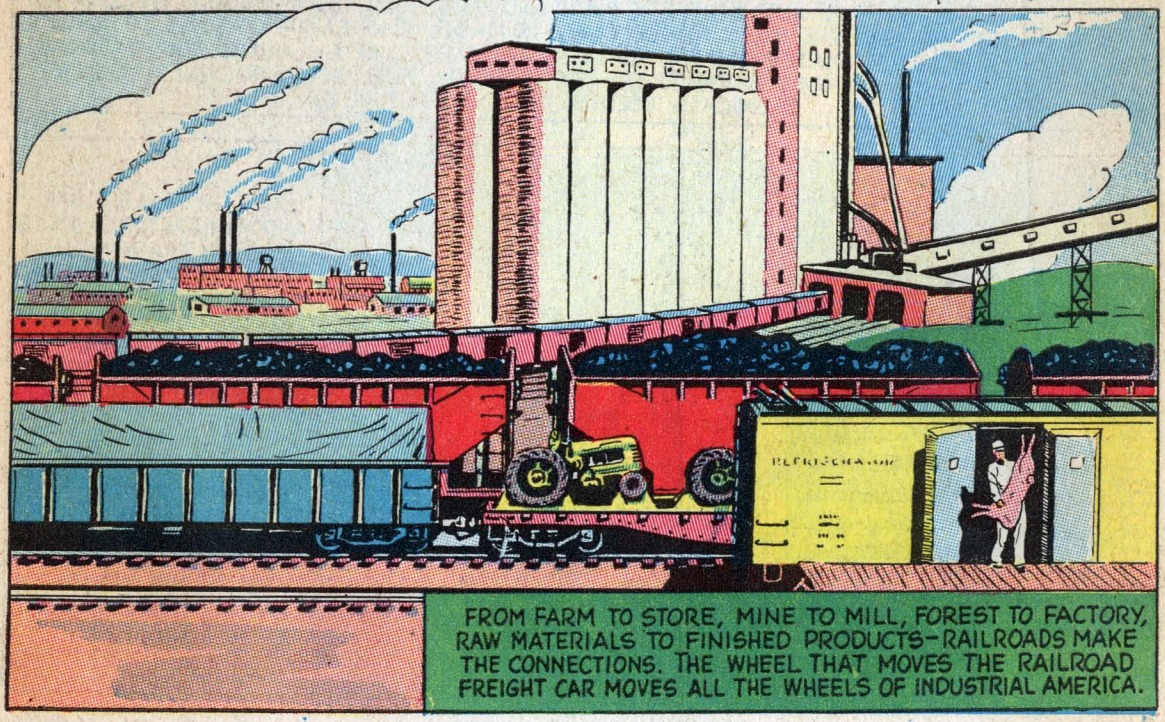


"FROM THE MILLS, CLOTH AND MANUFACTURED GOODS ARE THEN TRANSPORTED TO WHOLESALERS' WAREHOUSES AND TO RETAIL STORES. CLOTHING CARRIED BY RAIL IS GENERALLY HANDLED IN LESS-THAN-CARLOAD SHIPMENTS. MANY SHIPMENTS MOVE OVER THE RAILROADS IN FAST 'MERCHANDISE TRAINS' AND 'PIGGYBACK' TRAINS (TRUCKS ON FLAT CARS). PICK-UP AND DELIVERY SERVICE HELPS SPEED THE HANDLING OF MERCHANDISE FROM FACTORY TO STORE."

WE'VE TALKED BRIEFLY ABOUT HOW RAILROADS SERVE 12 OF OUR IMPORTANT INDUSTRIES. THESE INDUSTRIES, AND MANY OTHERS, ARE ALL LINKED TOGETHER IN A VAST TRANSPORTATION SYSTEM IN WHICH RAILROADS PLAY A VITAL ROLE.

AMERICAN RAILROADS SERVE AMERICAN INDUSTRY EVERY DAY— SWIFTLY, SAFELY, AND ECONOMICALLY. THEY HELP MAKE POSSIBLE ALMOST EVERYTHING YOU USE IN YOUR DAILY LIFE.


THANK YOU, MR. DIXON, FOR VISITING OUR CLASS. YOU HAVE HELPED US TO UNDERSTAND THE IMPORTANT SERVICES OF RAILROADS TO INDUSTRY, AND HOW MUCH WE DEPEND ON THEM.


FROM FARM TO STORE, MINE TO MILL, FOREST TO FACTORY, RAW MATERIALS TO FINISHED PRODUCTS—RAILROADS MAKE THE CONNECTIONS. THE WHEEL THAT MOVES THE RAILROAD FREIGHT CAR MOVES ALL THE WHEELS OF INDUSTRIAL AMERICA.

10-57 3000M G. B. P.

SCHOOL AND COLLEGE SERVICE
ASSOCIATION OF AMERICAN RAILROADS
TRANSPORTATION BUILDING, WASHINGTON 6, D. C.